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fully renders the fundamental formula $\cos a = \cos b \cos c + \sin b \sin c \cos A$ perfectly general, and then by basing all further deductions on this one determines rigorously all necessary relations.

To some teachers it may seem that on this feature of the work too much emphasis is laid, and that too much time, and, possibly, clearness and definiteness are sacrificed to this end. On the other hand, the careful student will maintain that this one feature should recommend the book most highly, for long after the pupil has forgotten what a cosine is he will have retained the habit of mind which distinguishes clearly between the general and the particular, and will be less apt to make that most frequent of all mistakes in logic, that of arguing to the former having proved the latter. Certainly, if the present criticism is at all just, enough has been said to put in evidence the fact that Professor Miller has succeeded, at important points, in improving Lock's trigonometry, and his work will assuredly be found acceptable to many educators.

So far as the publishers are concerned, the typographic results are excellent; different types have been employed with useful discrimination, and a cheerful appearance is given through liberal use of space. The book, however, is, for practical use, large. It contains two hundred pages, is heavier than Chauvenet, while containing only one-fourth as much subject-matter, and three times as heavy as Wells, while, save for some sixty pages devoted to logarithmic tables of questionable value, it does not contain any more. The student of Lock's text book in its present dress will certainly receive the impression that trigonometry is a very large subject indeed, and the probabilities are that he will never entirely recover from this, his first impression.

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SCIENTIFIC JOURNALS.

THE ASTROPHYSICAL JOURNAL, MARCH.

Résumé of Solar Observations Made at the Royal Observatory of the Roman College During the Second Half of 1896: By P. Tacchini. A general summary of solar observations, giving the distribution in latitude of spots, faculæ and prominences during the period indicated.

Oxygen in the Sun: By Arthur Schuster. In a short note Professor Schuster calls attention to the close agreement in wave-length between two of the triplets of the 'compound line spectrum' of the oxygen and two of Young's chromosphere lines. In view of the recent opening of the question of the existence of oxygen in the solar atmosphere, Professor Schuster suggests that an accurate determination of the chromorpheric lines in question be made.

The Yerkes Observatory of the University of Chicago—I. Selection of the Site: By George E. Hale. The writer gives a review of the considerations that led to the selection of the site of the Yerkes Observatory. A general discussion of the points to be considered in the selection of an observatory site is followed by a discussion of the conditions to be met in the case in hand.

Preliminary Table of Solar Spectrum Wave-lengths: By Henry A. Rowland.

On the Occurrence of Vanadium in Scandinavian Rutile: By B. Hasselberg. The paper describes the detection of the heretofore unsuspected existence of Vanadium in Norwegian and Swedish Rutile. The research was entirely spectroscopic.

A New Formula for the Wave-lengths of Spectral Lines: By J. J. Balmer. The author discusses a generalization of his formula for the hydrogen spectrum. This formula, which is generally known under the name of 'Balmer's law,' is $\lambda_n = 3645.6 \frac{n^2}{n^2-4}$. By introducing a new constant c, we have $\lambda_n = a \frac{(n+c)^2}{(n+c)^2-b}$, which is found to satisfy the series of lines hitherto investigated by Kayser and Runge by the aid of the formula $\frac{1}{\lambda_n} = A - \frac{B}{n^2} - \frac{C}{n^4}$. Balmer's new law is similar to that due to Rydberg, except that the latter considered the value of $\frac{b}{a}$ to be constant for all elements. Several geometrical constructions based upon the formulæ are given.

Minor Contributions and Notes, Reviews of Recent Astrophysical Literature.

Bibliography of Recent Astrophysical Literature.